Analytical Laboratory Report

Report ID: 9025830

November 12, 2004

JAMES FRIEDMAN
AMEC
MIDWEST PLAZA BLDG STE 1200
800 MARQUETTE AVE
MINNEAPOLIS MN 55402

Company Number: 8047

Date Collected:	11/10/2004
Date Received:	11/11/2004
Date Reported:	11/12/2004

Analyst: _____

JOHN D DRAEGER, Chemistry Lab Technician
draeger@mail.slh.wisc.edu

Reviewer: _____

LYLE REICHMANN, CIH - Inorganic Supervisor
lr@mail.slh.wisc.edu

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If you have any questions regarding this report please feel free to contact the laboratory via email (as listed above) or via telephone at 800-446-0403

Analytical Results

LAB NUMBER / FIELD NUMBER	DESCRIPTION			AIR VOLUME
1114616	2PYF			928.3 liters
P-1E				
Total Weight		ND <53 µg/sample	ND <0.057 mg/m³	
1114617	2PYF			925.9 liters
P-2W				
Total Weight		ND <53 µg/sample	ND <0.057 mg/m³	
1114618	2PYF			940.8 liters
P-5E				
Total Weight		ND <53 µg/sample	ND <0.056 mg/m³	
1114619	2PYF			960 liters
P-5W				
Total Weight		ND <53 µg/sample	ND <0.055 mg/m³	

COMMENTS: Gravimetric results completed 11/11/04.

Displayed values on report have been rounded; however all calculations are performed using raw, unrounded intermediate results.
Please contact the laboratory if you have any questions regarding our result calculation or rounding.
ND = None Detected. Results are less than the method detection limit

Analytical Methodology

WEIGHT SAMPLE RESULTS:

Samples were analyzed by WOHL in-house method based on NIOSH 0500 and 0600.

The samples were collected on preweighed filters. Upon return to the lab, the filters are re-weighed on a microbalance. The initial weight is subtracted from the final weight.

The results are expressed as milligrams per cubic meter of air if the air collection volume was provided; otherwise as micrograms per sample. All results are blank corrected if a blank was provided unless otherwise noted in the comments section of the report.

REPORTING LIMITS:

This table contains the WOHL determined reporting limits for the compounds specified in this report. These numbers are based on the historical statistical data for a particular analyte or are based on WOHL determined values.

Analyte	Reporting Limit
Total Weight on 2PYF	53 µg/sample

Analytical Quality Control

Due to technical considerations related to the production of known spiked control samples, no external quality control samples were analyzed with this study. However, all other quality assurance measures such as daily calibration, linearity checks, detection limit and desorption determination and peer and supervisory review of the data have been performed. The results in this report conform to the high quality standards set forth at The Wisconsin Occupational Health Laboratory.

End of Analytical Report

The results in this report apply only to the samples, specifically listed above, tested at the Wisconsin Occupational Health Laboratory .
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Analytical Laboratory Report

Report ID: 9026150

November 19, 2004

JAMES FRIEDMAN
AMEC
MIDWEST PLAZA STE 1200
800 MARQUETTE AVE
MINNEAPOLIS MN 55402

Company Number: 8047

Date Collected:	11/10/2004
Date Received:	11/11/2004
Date of Analysis:	11/15/2004
Date Reported:	11/19/2004

Analyst: Shari L Schwabe

SHARI L SCHWABE, Advanced Chemist
sls@mail.slh.wisc.edu

Reviewer: Steve Strebel

STEVE STREBEL, Organic Supervisor
ss@mail.slh.wisc.edu

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Analytical Results

LAB NUMBER / FIELD NUMBER	DESCRIPTION			AIR VOLUME
1114630	SCT			96.9 liters
V-4E				
Solvent Scan				
Acetone		<=2.1 µg/sample	<=0.022 mg/m³	<=0.0091 ppm
Decamethylcyclo Pentasiloxane		<=3.1 µg/sample	<=0.032 mg/m³	<=0.0021 ppm
Ethyl Alcohol		ND <5.0 µg/sample	ND <0.052 mg/m³	ND <0.027 ppm
Isopropyl Alcohol		ND <1.2 µg/sample	ND <0.012 mg/m³	ND <0.0050 ppm
Naphtha (Coal Tar)		ND <0.50 µg/sample	ND <0.0052 mg/m³	ND <0.0010 ppm
Petroleum Distillates		1.5 µg/sample	0.016 mg/m³	0.0044 ppm
Phenylcyclohexene (4-)		ND <5.0 µg/sample	ND <0.052 mg/m³	ND <0.0080 ppm
Toluene		<=1.7 µg/sample	<=0.018 mg/m³	<=0.0047 ppm
Total VOCs as Hexane		3.5 µg/sample	0.036 mg/m³	0.010 ppm
Xylene		ND <0.40 µg/sample	ND <0.0041 mg/m³	ND <0.00095 ppm
1114631	SCT			99.8 liters
V-2W				
Solvent Scan				
Acetone		<=2.1 µg/sample	<=0.021 mg/m³	<=0.0089 ppm
Decamethylcyclo Pentasiloxane		4.6 µg/sample	0.047 mg/m³	0.0031 ppm
Ethyl Alcohol		<=6.5 µg/sample	<=0.065 mg/m³	<=0.035 ppm
Isopropyl Alcohol		<=3.1 µg/sample	<=0.031 mg/m³	<=0.013 ppm
Naphtha (Coal Tar)		ND <0.50 µg/sample	ND <0.0050 mg/m³	ND <0.0010 ppm
Petroleum Distillates		9.3 µg/sample	0.093 mg/m³	0.026 ppm
Phenylcyclohexene (4-)		ND <5.0 µg/sample	ND <0.050 mg/m³	ND <0.0077 ppm
Toluene		<=1.7 µg/sample	<=0.017 mg/m³	<=0.0045 ppm
Total VOCs as Hexane		15 µg/sample	0.15 mg/m³	0.043 ppm
Xylene		<=1.7 µg/sample	<=0.017 mg/m³	<=0.0039 ppm
1114632	SCT			99.3 liters
V-5E				
Solvent Scan				
Acetone		<=2.1 µg/sample	<=0.021 mg/m³	<=0.0089 ppm
Decamethylcyclo Pentasiloxane		6.5 µg/sample	0.066 mg/m³	0.0043 ppm
Ethyl Alcohol		ND <5.0 µg/sample	ND <0.050 mg/m³	ND <0.027 ppm
Isopropyl Alcohol		<=3.1 µg/sample	<=0.031 mg/m³	<=0.013 ppm
Naphtha (Coal Tar)		ND <0.50 µg/sample	ND <0.0050 mg/m³	ND <0.0010 ppm
Petroleum Distillates		3.2 µg/sample	0.033 mg/m³	0.0093 ppm
Phenylcyclohexene (4-)		ND <5.0 µg/sample	ND <0.050 mg/m³	ND <0.0078 ppm
Toluene		<=1.7 µg/sample	<=0.017 mg/m³	<=0.0045 ppm
Total VOCs as Hexane		7.5 µg/sample	0.076 mg/m³	0.021 ppm
Xylene		ND <0.40 µg/sample	ND <0.0040 mg/m³	ND <0.00093 ppm

Analytical Results

LAB NUMBER / FIELD NUMBER	DESCRIPTION			AIR VOLUME
1114633	SCT			98.6 liters
V5W				
Solvent Scan				
Acetone		<=2.1 µg/sample	<=0.021 mg/m³	<=0.0090 ppm
Decamethylcyclo Pentasiloxane		6.5 µg/sample	0.066 mg/m³	0.0043 ppm
Ethyl Alcohol		<=6.5 µg/sample	<=0.066 mg/m³	<=0.035 ppm
Isopropyl Alcohol		<=3.1 µg/sample	<=0.031 mg/m³	<=0.013 ppm
Naphtha (Coal Tar)		ND <0.50 µg/sample	ND <0.0051 mg/m³	ND <0.0010 ppm
Petroleum Distillates		2.1 µg/sample	0.021 mg/m³	0.0061 ppm
Phenylcyclohexene (4-)		ND <5.0 µg/sample	ND <0.051 mg/m³	ND <0.0078 ppm
Toluene		ND <0.40 µg/sample	ND <0.0041 mg/m³	ND <0.0011 ppm
Total VOCs as Hexane		6.2 µg/sample	0.063 mg/m³	0.018 ppm
Xylene		ND <0.40 µg/sample	ND <0.0041 mg/m³	ND <0.00093 ppm

COMMENTS: Samples 1114630-1114633 may also contain traces of n-heptane.

Displayed values on report have been rounded; however all calculations are performed using raw, unrounded intermediate results.
Please contact the laboratory if you have any questions regarding our result calculation or rounding.
ND = None Detected. Results are less than the method detection limit
<= Less Than or Equal To. The analyte was detected but at a level too low to be accurately quantitated. The actual amount is less than or equal to the reported value.

Analytical Methodology

GENERAL SOLVENTS:
These samples are analyzed using WOHL method WG006, which is based on the method, OSHA 7.

The collection media is a SMALL (SCT), LARGE (LCT) or JUMBO (JCT) Activated Charcoal tube.

Front and back sections of the tube are separately desorbed in 1 ml for SMALL tubes, 3 ml for LARGE tubes or 5 ml for JUMBO tubes, of Carbon Disulfide for 30 minutes prior to analysis.

The samples are run on a Hewlett-Packard Gas Chromatograph equipped with an FID. The Primary and Confirming columns were chosen from the following:
Carbopack C /0.1% SP-1000
VoCol 105M Capillary
HP-5 Capillary
Supelcowax-10 Capillary
SPB-624 capillary

Samples may also have been confirmed on a Model 5972 Hewlett-Packard Gas Chromatograph Mass-Selective Detector containing a Nukol Capillary.

Reporting Limits are specific for each substance.

Results are not blank corrected unless noted in report.

TOTAL VOC AS REQUESTED ANALYTE ON CHARCOAL TUBE OR BADGE MEDIA:
These samples are analyzed by WOHL methods WG034 or WG059, which are based on in-house modifications of OSHA 7, 3M organic vapor monitor, and SKC series 575 organic vapor monitor protocols.

Samples are either actively collected on small(sct), large(lct), or jumbo(jct) activated charcoal tubes or passively collected on 3M organic vapor monitor badges or SKC series 575 organic vapor monitors. Front & back sections of the media are separately desorbed in an appropriate amount of carbon disulfide following WOHL, 3M, or SKC series 575 media preparation procedures.

Samples are injected on Hewlett-Packard gas chromatographs equipped with flame ionization detectors(GC-FID). Primary and confirming columns are chosen from the following:
Carbopack C/0.1% SP-1000
VoCol 105M Capillary
Supelcowax-10 Capillary
HP-5 capillary
SPB-624 capillary

Samples may also have been confirmed on a Model 5972 Hewlett-Packard Gas Chromatograph Mass-Selective Detector containing a capillary column.

All of the organic vapor amount in the sample is quantitated using a requested analyte as the reference standard. The method provides an estimate of the overall organic vapor content in the samples. Results indicate a "worst case" scenario because they include every detected VOC in the sample, with the assumption that the response for all of the

Analytical Methodology

detected VOC's is similar to that of the requested analyte.

Samples are not blank corrected unless noted in the analytical report. Results for badge media are calculated using manufacturer-supplied factors. All reporting limits for all types of media are derived from lot 2000 charcoal tube media.

REPORTING LIMITS:

This table contains the WOHL determined reporting limits for the compounds specified in this report. These numbers are based on the historical statistical data for a particular analyte or are based on WOHL determined values.

Analyte	Reporting Limit
Acetone on SCT	2.1 µg/sample
Decamethylcyclo Pentasiloxane on SCT	3.1 µg/sample
Ethyl Alcohol on SCT	6.5 µg/sample
Isopropyl Alcohol on SCT	3.1 µg/sample
Naphtha (Coal Tar) on SCT	1.8 µg/sample
Petroleum Distillates on SCT	1.3 µg/sample
Phenylcyclohexene (4-) on SCT	5 µg/sample
Toluene on SCT	1.7 µg/sample
Total VOCs as Hexane on SCT	0.8 µg/sample
Xylene on SCT	1.7 µg/sample

Analytical Laboratory Report

Report ID: 9026103

November 19, 2004

JAMES FRIEDMAN
AMEC
MIDWEST PLAZA TEE 1200
800 MARQUETTE AVE
MINNEAPOLIS MN 55402

Company Number: 8047

Date Collected:	11/10/2004
Date Received:	11/11/2004
Date of Analysis:	11/19/2004
Date Reported:	11/19/2004

Analyst: _____

LEROY DOBSON, Advanced Chemist
ld@mail.slh.wisc.edu

Reviewer: _____

LYLE REICHMANN, CIH - Inorganic Supervisor
lr@mail.slh.wisc.edu

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Analytical Results

LAB NUMBER / FIELD NUMBER	DESCRIPTION				AIR VOLUME
1114626	SKC226-119				101.7 liters
F-4E					
Formaldehyde		0.73 µg/sample	0.0072 mg/m³	0.0059 ppm	
1114627	SKC226-119				99.1 liters
F-2W					
Formaldehyde		1.1 µg/sample	0.011 mg/m³	0.0090 ppm	
1114628	SKC226-119				100.0 liters
F-5E					
Formaldehyde		1.3 µg/sample	0.013 mg/m³	0.011 ppm	
1114629	SKC226-119				95.5 liters
F-5W					
Formaldehyde		1.1 µg/sample	0.012 mg/m³	0.0095 ppm	

Displayed values on report have been rounded; however all calculations are performed using raw, unrounded intermediate results.
Please contact the laboratory if you have any questions regarding our result calculation or rounding.

Analytical Methodology

FORMALDEHYDE (BY HPLC):
Samples were analyzed by method WL051 based on method T011.

An air sample is collected by drawing a known volume of air through a 2,4 dinitrophenylhydrazine (DNPH) treated cartridge. The sample is extracted with acetronitrile and analyzed by HPLC with uv detection.

The results are expressed as parts per million if the air collection volume is provided, otherwise as micrograms per sample. All results are not blank corrected unless otherwise noted on the report.

REPORTING LIMITS:

This table contains the WOHL determined reporting limits for the compounds specified in this report. These numbers are based on the historical statistical data for a particular analyte or are based on WOHL determined values.

Analyte	Reporting Limit
Formaldehyde on SKC226-119	0.0645 µg/sample

Analytical Quality Control

Laboratory prepared quality control (QC) samples were analyzed along with the samples included in the analytical report. The analysis results for these QC samples are listed below.

Instrument Used for Analysis: Perkin Elmer HPLC

Laboratory Control Sample: 112137

QC Sample Media: DNPH silica gel tubes

Analyte	Target Value	Recovery (%)	Acceptable Recovery (%)	Pass/Fail
Formaldehyde on DNPH silica gel	1.2 µg/sample	113.8	79 - 121	PASS

Laboratory Control Sample: 112138

QC Sample Media: DNPH silica gel tubes

Analyte	Target Value	Recovery (%)	Acceptable Recovery (%)	Pass/Fail
Formaldehyde on DNPH silica gel	2.9 µg/sample	103.0	79 - 121	PASS

The acceptable range for an analyte is based on the standard deviation of each analyte, which has been determined from statistical evaluation of the historical performance of the assay. The acceptable range includes up to 3 standard deviations, so a result within 3 standard deviations is considered to have passed the QC requirements. A result ouside of the acceptable range is considered to have failed QC and may indicate the direction of possible bias for the samples included in the analytical report. The analytes used for QC determination will not always be the same analytes that appear in the samples for the report, however they are representative of the compounds found in the samples and indicative of overall assay performance.

End of Analytical Report

The results in this report apply only to the samples, specifically listed above, tested at the Wisconsin Occupational Health Laboratory .
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Analytical Laboratory Report

Report ID: 9026088

November 18, 2004

JAMES FRIEDMAN
AMEC
MIDWEST PLAZA TEE 1200
800 MARQUETTE AVE
MINNEAPOLIS MN 55402

Company Number: 8047

Date Collected:	11/10/2004
Date Received:	11/11/2004
Date Reported:	11/18/2004

Analyst: Christine Powell

CHRISTINE POWELL, Advanced Microbiologist
powellcj@mail.slh.wisc.edu

Reviewer:

STEVE STREBEL, Organic Supervisor
ss@mail.slh.wisc.edu

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Analytical Results

Sample Number Field Number	Air Sample Volume (Liters)	Analyte Fungi	Results		%
1114620					
M-1E					
	193.6	Cladosporium species	91 CFU	470 CFU/m³	62.3
		Penicillium species	54 CFU	280 CFU/m³	37.0
		Alternaria species	1 CFU	5.2 CFU/m³	0.7
1114621					
M-2W					
	192.64	Cladosporium species	36 CFU	190 CFU/m³	76.6
		Penicillium species	8 CFU	42 CFU/m³	17.0
		Aspergillus ochraceus	1 CFU	5.2 CFU/m³	2.1
		Aspergillus fumigatus	1 CFU	5.2 CFU/m³	2.1
		Alternaria species	1 CFU	5.2 CFU/m³	2.1
1114622					
M-5E					
	195.33	Cladosporium species	9 CFU	46 CFU/m³	50.0
		Penicillium species	6 CFU	31 CFU/m³	33.3
		Ustilago species	2 CFU	10 CFU/m³	11.1
		Aspergillus nidulans	1 CFU	5.1 CFU/m³	5.6
1114623					
M-5W					
	195.84	Cladosporium species	18 CFU	92 CFU/m³	78.3
		Penicillium species	4 CFU	20 CFU/m³	17.4
		Paecilomyces variotii	1 CFU	5.1 CFU/m³	4.3

Sample Number Field Number	Air Sample Volume (Liters)	Analyte Fungi	Results		%
1114624					
M-20E					
	185.14	Cladosporium species	200 CFU	1100 CFU/m³	69.4
		Penicillium species	80 CFU	430 CFU/m³	27.8
		Alternaria species	4 CFU	22 CFU/m³	1.4
		Aspergillus ochraceus	2 CFU	11 CFU/m³	0.7
		Fusarium species	1 CFU	5.4 CFU/m³	0.3
		Basidiomycete	1 CFU	5.4 CFU/m³	0.3
		NOTE: Filter overloaded; all counts are estimated. Actual counts may be higher.			
1114625					
M-10[redacted]					
	185.14	Cladosporium species	200 CFU	1100 CFU/m³	76.9
		Penicillium species	50 CFU	270 CFU/m³	19.2
		Alternaria species	3 CFU	16 CFU/m³	1.2
		Trichoderma harzianum	3 CFU	16 CFU/m³	1.2
		Fusarium species	2 CFU	11 CFU/m³	0.8
		Basidiomycete	2 CFU	11 CFU/m³	0.8
		NOTE: Filter overloaded; all counts are estimated. Actual counts may be higher.			

Displayed values on report have been rounded; however all calculations are performed using raw, unrounded intermediate results. Please contact the laboratory if you have any questions regarding our result calculation or rounding.

Analytical Quality Control

Quality control samples are analyzed to ensure the accuracy of these results. These results meet the quality standards of WOHL's Environmental Microbiology section.

Analytical Methodology

FUNGI RESULTS:

Samples are analyzed by the standard mycology procedure by the Wisconsin Occupational Health Laboratory. The date of analysis is the date received as listed on the report.

Air samples on filters

The filter is placed directly on Malt Extract Agar and incubated at 25 degrees C for 7 days.

Andersen samples/Impaction samples

Samples are incubated at 25 degrees C for 7 days.

Wipe/Bulk samples

Examples: Liquids (lubricating oils and drain pan fluids), carpets,drywall, ceiling tiles,insulation, wipes, wood chips, silage, compost, textiles and scrapings.

Liquids are cultured directly and with dilutions made with sterile water onto Malt Extract agar and incubated at 25 degrees C for 7 days.

Carpets, tile, insulation etc. are measured or weighed. Spores are washed from samples. Dilutions are made in sterile water. Aliquots are cultured on Malt Extract agar, Malt Extract agar with NaCl, and/or Cellulose agar and incubated at 25 degrees C for 7 days.

Wipes are washed with sterile water, dilutions are made with sterile water and aliquots are cultured on Malt Extract agar, Malt extract agar with NaCl, and/or Cornmeal agar at 25 degrees C for 7 days.

Evaluation

Fungi are identified by microscopic and macroscopic examination. Most molds are identified to genus level. Aspergillus species, Stachybotrys chartarum,Trichoderma species, and several other isolates are identified to the species level.

Results

Quantity of growth for air samples is reported in colony forming units (CFU) and colony forming units/cubic meter(CFU/M3).

Quantity of growth for bulk samples is reported in colony forming units/gram(CFU/gram), colony forming units/square inch (CFU/in2), colony forming units/ square centimeter(CFU/cm2) or colony forming units per milliliter(CFU/ml).

Quantity of growth for wipe samples is reported as CFU. If wipe area is known, results will be reported as colony forming units/square inch(CFU/in2), colony forming units/square foot (CFU/ft2) or colony forming units/square centimeter(CFU/cm2).

Results are not blank corrected.

Interpretation

There is no PEL(permissible exposure limit) or TLV(Threshold limit value) available for fungal results from air, wipe or bulk samples.

Fungal results from indoor air samples should be compared to fungal results collected outdoors and in non-complaint areas. Generally, indoor sample fungal genera and levels should be

Analytical Methodology

equal to or less than outdoor and non-complaint area fungal levels.
Different genera or increased levels of fungi present on indoor air samples compared to outdoor air samples may indicate fungal growth inside.
Fungi are ubiquitous in the environment. Low quantities of fungi may not be significant especially in bulk and wipe samples.

Limitations

Cultures are for viable fungi only. Biases may result due to sampling inefficiencies and stress experienced by the fungi during sampling and culturing.
The limit of detection (LOD) for air samples is 1 CFU per sample. The LOD is adjusted according to the volume of air sampled. The minimum concentration of viable fungi detected in air samples is dependent on the sampling device, volume of air sampled and sample processing.
The limit of detection (LOD) for bulk and wipe samples is 100 CFU per sample analyzed. The LOD is adjusted for amount or size of sample analyzed. The LOD for liquid samples is 10 cfu/ml. The minimum concentration of viable fungi detected in bulk samples is dependent on the sample area, collection method, and sample processing. Wipe and bulk samples results represent only the area sampled.
Results for bulk samples for CFU/gram analysis with a low amount of material present will have a greater margin of error. Minimum suggested weight is 0.5-1.0 gram.

End of Analytical Report

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